Claims:

Sub A1

1. Apparatus for cosmetic reduction of wrinkles on a superficial area of mammalian skin, the apparatus comprising a radiation delivery system for delivering electromagnetic radiation of light wavelength to the skin, the radiation delivery system including a pulsation system for pulsing the radiation delivered according to a predetermined regime, the apparatus being intended to be configured such that the radiation delivered the skin is of predetermined monochromatic wavelength or narrow wavelength bandwidth substantially in the range 500nm-850nm and pulse energy rise time substantially at or below 200μs.

2. Apparatus according to claim 1, wherein the pulse energy rise time substantially in the range 50μs to 150μs.

3. Apparatus according to claim 1 or claim 2, wherein the radiation energy density delivered to the skin substantially at or below 5J/cm^2 per pulse.

4. Apparatus according to any preceding claim, wherein the energy pulse duration is substantially at or below 100ms.

5. Apparatus according to claim 4, wherein the energy pulse duration is substantially at or below 2ms.

6. Apparatus according to claim 5, wherein the energy pulse duration is substantially at or below 200μs.

7. Apparatus for cosmetic reduction of wrinkles on superficial mammalian skin, the apparatus comprising a radiation delivery system for delivering substantially monochromatic radiation, said radiation being in a wavelength bandwidth of substantially 15nm or less and in at least one of the ranges 570nm to 600nm and 750nm to 850nm, the delivery system including a pulsation system for pulsing the radiation delivered according to a predetermined regime in which the radiation delivered to the skin has an energy density substantially at or below to 5J/cm^2 per pulse.

8. Apparatus according to any preceding claim, wherein the radiation delivery system is set up to deliver substantially monochromatic radiation in a bandwidth of substantially 15nm or less substantially in at least one of the ranges 577nm to 585nm and 800nm to 815nm.

9. Apparatus according to any preceding claim, wherein the radiation delivery system is set up to deliver radiation in a concentrated beam having a cross-section with a substantially uniform energy distribution across said beam cross section.

10. Apparatus according to any preceding claim, wherein

the radiation delivery system is set up to deliver radiation in a concentrated beam having a diameter substantially in the range 1mm to 10mm.

11. Apparatus according to any preceding claim, wherein the radiation delivery system comprises a laser radiation delivery system.

12. Apparatus according to claim 11, wherein the laser radiation delivery system comprises a dye laser radiation delivery system.

13. Apparatus according to claim 12, wherein the dye laser radiation delivery system comprises a flashlamp pumped dye laser including a pulse forming network arranged to pulse the laser according to the predetermined pulse regime.

14. Apparatus according to claim 11, wherein the laser radiation delivery system comprises a semiconductor laser radiation delivery system.

15. Apparatus according to any of claims 1 to 11, wherein the radiation delivery means includes a broad band radiation emitting device.

16. Apparatus according to claim 12, wherein the radiation delivery means includes at least one radiation filter arranged to filter radiation to permit the substantially monochromatic (or narrowed bandwidth) radiation to be delivered to the skin.

17. Apparatus according to any preceding claim, further comprising a control system arranged to permit the energy density to be varied within the range 0.5J/cm² and 5J/cm².

18. Apparatus according to claim 17, wherein the control means is arranged to inhibit selection of an energy density substantially above 5J/cm².

19. Apparatus according to any preceding claim, which includes an optical arrangement for focussing the radiation beam.

20. A method of cosmetically reducing wrinkles from a superficial area of mammalian skin tissue having, in the order specified, an epidermal layer, a basal layer, and a dermal layer, which method comprises irradiating said dermal layer through said basal layer by means of visible or infra-red radiation, said irradiation being selected to be absorbed by a chromophore in targeted capillaries present in said dermal layer, the targeted capillaries having fenestrations permitting transfer of inflammatory mediators through the capillary wall upon selective heating to a threshold level, while said basal layer remains intact so as to substantially inhibit contact of said dermal layer with ambient air, said irradiation being pulsed and having:

i) an energy density of substantially 5J/cm²

or less; and/or,

ii) energy pulse rise time substantially at or below 200μs.

21. A method according to claim 20, wherein the irradiation is from a substantially monochromatic radiation source in a bandwidth of substantially 15nm or less.

22. A method according to claim 21, wherein said irradiation is from a coherent radiation source.

23. A method according to claim 22, wherein the source comprises a ruby laser arranged to target the dermis.

24. A method according to claim 22, wherein the source comprises a dye laser of wavelength selected to target oxyhemoglobin present in blood vessels in said dermal layer.

25. A method according to claim 22, wherein the source comprises a dye laser, a ruby laser, or a semiconductor laser which scans said area of mammalian skin tissue.

26. A method according to according to any of claims 20 to 25, wherein the pulse energy rise time substantially in the range 50μs to 150μs.

27. A method according to any of claims 20 to 26, wherein the energy pulse duration is substantially at or below 100ms.

28. A method according to claim 27, wherein the energy pulse duration is substantially at or below 2ms.

29. A method according to claim 28, wherein the energy pulse duration is substantially at or below 200μs.

30. A method according to claim 20, in which said superficial area of mammalian skin tissue is treated with an artificial chromophore which is absorbed into the dermal layer.

31. A method according to claim 30, wherein the artificial chromophore is applied to the epidermal layer in the form of a liposome-containing topical formulation.